

**TECHNICAL REVIEW DOCUMENT
For
RENEWAL TO OPERATING PERMIT 96OPDE134**

Public Service Company of Colorado – Zuni Station
Denver County
Source ID 0310007

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Reviewed by:

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I. Purpose:

This document will establish the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewed operating permit proposed for this site. The current Operating Permit was issued August 1, 2009. The expiration date for the permit is August 1, 2014. This document is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. The conclusions made in this report are based on information provided in the renewal application submitted July 24, 2013, additional information submitted on October 23, 2013, previous inspection reports and various e-mail correspondence, as well as telephone conversations with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at www.colorado.gov/cdphe/airTitleV. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

This facility is classified as an electric services facility under the Standard Industrial Classification 4911. This facility consists of three steam boilers (Units 1A, 1B and 2) that are fueled primarily with natural gas, although No. 6 fuel oil is used as a back-up fuel. Typically these boilers provide steam to the downtown Denver area; however, during peak operating periods the turbines are brought online. Boilers 1A and 1B serve a common turbine rate at 45 gross MW (GMW) and boiler 2 supports a turbine rated at 76 GMW. In addition, there are cold cleaner solvent vats and an emergency generator that are included in Section II of the permit.

Based on the information available to the Division and provided by the applicant, it appears that no modifications to these significant emission units has occurred since the original issuance of the operating permit.

The facility is located in central Denver at 1335 Zuni Street in Denver county, within the Denver metro area. The Denver metro area is classified as attainment/maintenance for particulate matter less than 10 microns (PM₁₀) and carbon monoxide. Under that classification, all SIP-approved requirements for PM₁₀ and CO will continue to apply in order to prevent backsliding under the provisions of Section 110(l) of the Federal Clean Air Act. The Denver Metro Area is classified as nonattainment for ozone and is part of the 8-hr Ozone Control Area as defined in Colorado Regulation No. 7, Section II.A.1.

There are no affected states within 50 miles of the plant. Rocky Mountain National Park and Eagles Nest National Wilderness Area, both Federal Class I designated areas are within 100 km of this facility.

The summary of emissions that was presented in the Technical Review Document (TRD) for the original permit issuance has been modified to update actual emissions. Emissions from the facility are shown in the table below:

Pollutant	Potential to Emit (PTE)		Actual Emissions
	100% Natural Gas	100% No. 6 Fuel Oil	
PM ¹	782.3	782.3	0.46
PM ₁₀ /PM _{2.5}	782.3	782.3	0.46
SO ₂ ²	4.4	6,657.6	
NO _x	2,074.1	2,536.5	
CO	622.2	269.8	
VOC	40.7	41	
Lead (Pb) ³	N/A	0.076	N/A
Total HAPS	0.64	6.39	N/A
Highest Single HAP ⁴	0.56	4.26	N/A

¹ PTE, when burning any fuel, is based on the Reg 1 PM limit (0.102 lbs/mmBtu – boiler 1A, 0.126 lb/mmBtu – boiler 1B and 0.1 lb/mmBtu - boiler 2) x design heat rate x 8760 hrs/yr. PM₁₀ is assumed to be 100% of PM, when burning natural gas and 71% of PM, when burning No. 6 fuel oil (per AP-42, Section 1.3 (dated 9/98), Table 1.3-4).

²PTE, when burning No. 6 fuel oil, is based on the Reg 1 SO₂ limit (0.8 lbs/mmBtu for boilers 1A and 2 and 1.5 lbs/mmBtu for boiler 1B) x design heat rate x 8760 hrs/yr.

³Lead (Pb) emissions are based on emission factors from AP-42, Section 1.3 (dated 9/98), Table 1.3-11

⁴Highest single HAP is formaldehyde, when burning natural gas and nickel when burning No. 6 fuel oil.

Potential to emit for the boilers are based on the information identified in the above table and the maximum hourly fuel consumption rate, AP-42 emission factors (for natural gas Section 1.4, dated 3/98, Tables 1.4-1 and 1.4-2 and for No. 6 fuel oil Section 1.3, dated 9/98, Tables 1.3-1 and 1.3-3) and 8760 hrs/yr of operation. Actual emissions are based on APENs submitted on April 24, 2013 (2012 data).

In the above table for potential to emit, the breakdown of HAP emissions by fuel burned and individual HAPs is provided on page 12 of this document. HAP emissions are based on the maximum hourly fuel consumption rate, 8760 hrs/yr of operation and AP-42 emission factors (for natural gas Section 1.4, dated 3/98, Tables 1.4-3 and 1.4-4 and for No. 6 fuel oil Section 1.3, dated 9/98, Tables 1.3-6 and 1.3-11). Hexane emissions, when burning natural gas, are based on emission factors from a May 2000 EPRI report, the maximum hourly fuel consumption rate and 8760 hrs/yr of operation.

National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories

As indicated in the above table summarizing potential to emit, the facility is not a major source for HAPS and is an area source (minor source) for HAPS. As indicated in the technical review document to support the second renewal permit (issued August 1, 2009), EPA has been promulgating NESHAPs (also referred to as "MACT requirements") for area sources, and those requirements that could potentially apply to this facility are discussed below.

Paint Stripping and Miscellaneous Surface Coating at Area Sources (40 CFR Part 63 Subpart HHHHHH)

As indicated in the technical review document to support the second renewal (issued August 1, 2009), the Division considers that any spray coatings of motor vehicles and mobile equipment and spray application of coatings that contain the target HAP at this facility would meet the definition of facility maintenance. The source indicated that none of the paint stripping chemicals used at the facility contain methylene chloride; therefore, the provisions in 40 CFR Part 63 Subpart HHHHHH do not apply.

Reciprocating Internal Combustion Engines (40 CFR Part 63 Subpart ZZZZ)

The reciprocating internal combustion engine (RICE) MACT was signed as final on February 26, 2004 and was published in the Federal Register on June 15, 2004. Under this rulemaking only RICE that were > 500 hp and located at major sources of HAPS were subject to the requirements. Subsequent revisions were made to the RICE MACT to address new engines ≤ 500 hp located at major sources and new engines of all sizes at area sources (final revisions published January 18, 2008), existing compression

ignition engines \leq 500 hp at major sources and all sizes at area sources (final revisions published March 3, 2010) and existing spark ignition engines \leq 500 hp at major sources and all sizes at area sources (final revisions published August 20, 2010). Revisions were made on January 30, 2013 and these revisions primarily changed the requirements for engines greater than 500 hp located at area sources and the operating requirements for emergency engines.

There is an emergency generator included in the insignificant activity list which would qualify as an existing (construction commenced prior to June 12, 2006) engine and would be subject to requirements under the RICE MACT. As a result this engine will be removed from the insignificant activity list and included in Section II of the permit.

Coal- and Oil-Fired Electric Utility Steam Generating Units (40 CFR Part 63 Subpart UUUUU)

The requirements in 40 CFR Part 63 Subpart UUUUU apply to coal- or oil-fired electric utility generating units (EGU). The boilers at this facility meet the definition of EGU and are capable of firing No. 6 fuel oil; therefore, these requirements apply. An oil-fired EGU is defined in 40 CFR Part 63 Subpart UUUUU § 63.10042 as follows:

An electric utility steam generating unit meeting the definition of “fossil fuel-fired” that is not a coal-fired electric utility steam generating unit and that burns oil for more than 10.0 percent of the average annual heat input during any 3 consecutive calendar years or for more than 15.0 percent of the annual heat input during any one calendar year.

The Division considers that based on past operations of these boilers that these units do not qualify as oil-fired EGUs. As long as these boilers do not meet the definition of oil-fired EGUs, these requirements do not apply.

Industrial, Commercial and Institutional Boilers located at Area Sources (40 CFR Part 63 Subpart JJJJJ)

Since the boilers at this facility are not subject to requirement sun 40 CFR Part 60 Subpart UUUUU, they are potentially subject to the requirements in 40 CFR Part 63 Subpart JJJJJ. The requirements in 40 CFR Part 63 Subpart JJJJJ do not apply to gas fired boilers. The definition of gas-fired boiler in 40 CFR Part 63 Subpart JJJJJ includes boilers that burn fuel oil during periods of natural gas curtailment, gas supply emergencies and periodic testing, as long as periodic testing does not exceed 48 hours in any calendar year. The Division considers that based on past operations of these boilers that these units qualify as gas-fired boilers. As long as the boilers at this facility meet the definition of gas-fired units, these requirements do not apply.

New Source Performance Standards (NSPS)

EPA has promulgated NSPS requirements for new source categories since the issuance of the second renewal permit for this facility. NSPS requirements generally only apply to new or modified equipment and the Division is not aware of any modifications to existing equipment or additions of new equipment that would render equipment at this facility subject to NSPS requirements. However, because the recently promulgated NSPS requirements address equipment that may not be subject to APEN reporting or minor source construction permit requirements, the applicability of some of the newly promulgated requirements are being addressed here.

NSPS Subpart JJJJ – Stationary Spark Ignition Engines

NSPS Subpart JJJJ applies to stationary spark ignition engines that commenced construction, reconstruction or modification after June 12, 2006 and were manufactured after specified dates. The date the engine commenced construction is the date the engine was ordered by the owner/operator. The only engine at this facility is the emergency generator that is included in the insignificant activity list. This engine has been included in the insignificant activity list since initial issuance of this permit (July 1, 1998), therefore the requirements in NSPS Subpart JJJJ do not apply.

NSPS Subpart IIII – Stationary Compression Ignition Engines

NSPS Subpart IIII applies to stationary compression ignition engines that commenced construction, reconstruction or modification after July 11, 2005 and were manufactured after specified dates. The date the engine commenced construction is the date the engine was ordered by the owner/operator. The only engine at this facility is the emergency generator that is included in the insignificant activity list. This engine has been included in the insignificant activity list since initial issuance of this permit (date July 1, 1998), therefore the requirements in NSPS Subpart JJJJ do not apply.

Compliance Assurance Monitoring (CAM) Requirements

As discussed in the technical review document for both the first and second renewals, since none of the boilers are equipped with control devices, the Compliance Assurance Monitoring (CAM) requirements do not apply to these units.

Colorado Regulation No. 7, Sections XII and XVIII – Requirements for Oil and Gas Operations in the 8-hour Ozone Control Area

Although this facility is located in the 8-hour ozone control area, these requirements do not apply since oil and gas operations do not occur at this facility.

Colorado Regulation No. 7, Section XVI - Requirements for Engines in the 8-Hour Ozone Control Area and Section XVII – Statewide Requirements for Oil and Gas Operations

The requirements in Section XVI were adopted in March 2004 and apply to the 8-hour ozone control area. The requirements in Section XVII were adopted in December 2006

and apply statewide. The requirements in Section XVI apply to natural gas fired engines. The requirements in Section XVII include requirements for condensate tanks, glycol dehydrators and natural gas fired engines.

Condensate tank and glycol dehydrator requirements

There are no condensate tanks or glycol dehydrators at this facility. Therefore, these requirements do not apply.

Engine requirements

The requirements in Regulation No. 7, Section XVI and XVII.E apply to natural gas-fired engines. The emergency generator burns diesel fuel, therefore, these requirements do not apply.

Greenhouse Gas Emissions

The potential-to-emit of greenhouse gas (GHG) emissions from this facility is greater than 100,000 TPY CO₂e. Future modifications greater than 75,000 tons per year CO₂e may be subject to regulation (Regulation No. 3, Part A, I.B.44).

Repealed APEN Exemptions

Since the second Title V renewal permit was processed (issued August 1, 2009) the APEN exemptions for engines – limited size and hours (Reg 3, Part A, Section II.D.1.sss) and emergency generators – limited size and hours (Reg 3, Part A, Section II.D.1.ttt) was repealed. There is an emergency generator included in the insignificant activity list. The source submitted information indicating that actual, uncontrolled emissions from the emergency generator were below the APEN de minimis level.

III. Discussion of Modifications Made

Source Requested Modifications

The source's requested modifications identified in the July 24, 2013 renewal application were addressed as follows:

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The source requested that the responsible official and permit contact be updated. These changes were made as requested.

Section II.2 Boilers Burning Fuel Oil

The source indicated that the boilers would not burn No. 6 fuel oil except for emergency situations when natural gas is not available and that the units would qualify as gas-fired units under the requirements of 40 CFR Part 63 Subpart JJJJJJ. The source requested that language be added to the permit addressing the fact that the units will qualify as

gas-fired under the provisions of Subpart JJJJJJ. Condition 2.10 was added to address the restrictions on burning fuel oil for units to be considered gas-fired units under Subpart JJJJJJ.

Appendix A – Insignificant Activity list

The source requested that the description of the No. 6 fuel oil tank be corrected from 220,000 gallons to 215,000 gallons. The change has been made as requested.

Other Modifications

In addition to the source requested modifications, the Division has included changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this renewal.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments to the Zuni Station Renewal Operating Permit. These changes are as follows:

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- Monitoring and compliance periods and report and certification due dates are shown as examples. The appropriate monitoring and compliance periods and report and certification due dates will be filled in after permit issuance and will be based on permit issuance date. Note that the source may request to keep the same monitoring and compliance periods and report and certification due dates as were provided in the original permit. However, it should be noted that with this option, depending on the permit issuance date, the first monitoring period and compliance period may be short (i.e. less than 6 months and less than 1 year).
- Under “issued to”, the address was revised and the full company name (i.e., “Public Service Company of Colorado”, rather than “Public Service Company”) was included. The full company name is also reflected in the headers and footers.
- Revised to indicate that the permit is issued to “Public Service Company of Colorado”. This change is also reflected in the headers and footers.

Section I – General Activities and Summary

- The cold cleaner solvent vats and emergency generator were included in the facility description in Condition 1.1
- Condition 1.4 was revised to remove Section IV, Condition 3.d as a state-only requirement, since EPA approved these provisions into Colorado’s SIP effective October 6, 2008.

- The AOS (Condition 2) for evaporation of boiler chemical cleaning solutions has been removed.

The Division considers that with revisions to the Standards of Performance for Commercial and Industrial Solid Waste Incinerators – Emission Guidelines for Existing Sources (40 CFR Part 60 Subpart DDDD), the boilers would be considered Commercial and Industrial Solid Waste Incinerators (CISWI) if chemical cleaning solutions are evaporated in them and the boilers would be subject to the requirements for CISWI. Although the Division had not previously considered that the evaporation of chemical cleaning solution might trigger CISWI requirements, the initial CISWI requirements (promulgated December 1, 2000) exempted “energy recovery” from the definition of commercial and industrial waste and thus the boilers would not be considered CISWI units. Revisions were made to the CISWI requirements on March 21, 2011 (76 FR 15704) and essentially removed the exemption for units burning commercial and industrial solid waste for energy recovery. Therefore the Division considers that the chemical cleaning solutions would be considered a solid waste and if combusted would render the boilers subject to CISWI requirements.

Some non-hazardous secondary materials are not considered solid wastes when combusted but these would be materials used as fuel and/or ingredients that meet the legitimacy requirements. The Division does not consider that the boiler chemical cleaning solutions are either a fuel or an ingredient, thus they would be considered solid wastes.

Although the Division considers that the evaporation of chemical cleaning solutions is infrequent, occurs for a short duration of time and involves a relative small quantity of material, there does not seem to be any provisions that allow this activity without triggering CISWI requirements. Therefore, the AOS for the evaporation of chemical cleaning solutions has been removed.

- The following changes were made to the table in Condition 6.1:
 - Combined the emission unit no. and facility id columns.
 - The second column was labeled AIRS point number as that is more appropriate.
 - The emergency generator no longer qualifies as an insignificant activity and has been included in the table.

Section II.1 – Boilers burning only natural gas

- Condition 1.1 was revised to require that PM_{2.5} emissions be calculated annually.

Sections II.2 – Boilers burning only No. 6 fuel oil

- Condition 2.1 was revised to require that PM_{2.5} emissions be calculated annually.
- Corrected the reference in Condition 2.8.3 (reference to “Condition 3.8.2” should be Condition “2.8.2”).

- Added additional language to Condition 2.8.3 to clarify that the monthly period is a calendar month.
- The references to monthly visible emission observations in Condition 2.8.4 were changed to “calendar month” to be consistent with the language in Condition 2.8.3. In the second paragraph on Condition 2.8.4, “quarter” was replaced with “month”. Finally language was added to Condition 2.8.4 to indicate that if the specific activity occurs during the month, then the opacity observation shall be conducted within 24 hours of completing the specific activity and that if No. 6 fuel oil is not burned during the month, then no opacity observations are required.
- Added language to Condition 2.8.5 to indicate that opacity observations shall be conducted by an observer with current and valid Method 9 certification.
- Language was added to indicate the restrictions on burning fuel oil which make these units not subject to the requirements in 40 CFR Part 60 Subparts UUUUU and JJJJJ.

“New” Section II.5 – Diesel Fired Emergency Generator

There is one engine included in the insignificant activity list that was considered an insignificant activity under the provisions in Colorado Regulation No. 3, Part C, Section II.E.nnn (emergency generators). However, under the “catch-all” provisions in Regulation No. 3, Part C, Section II.E, sources that are subject to any federal or state applicable requirement, such as National Emission Standards for Hazardous Air Pollutants (NESHAPs), may not be considered insignificant activities.

As discussed previously in this document, the emergency generator is subject to the RICE MACT and can no longer be considered an insignificant activity. Although this engine cannot be considered an insignificant activity, the Division has not adopted revisions to the RICE MACT promulgated after July 1, 2007, so the engine is still exempt from APEN reporting and minor source construction permit requirements provided actual uncontrolled emissions are less than the APEN de minimis level (1 ton/yr). The emergency generator will be included in “new” Section II.5 of the permit.

The engine description is as follows:

Detroit Diesel, Model No. 7163-7305, Diesel Fuel-Fired Engine, Rated at 635 hp, Serial No. 16VA2496. This engine is used to drive an emergency generator.

The appropriate applicable requirements for this engine are as follows:

- Except as provided for below, visible emissions shall not exceed 20% opacity (Reg 1, Section II.A.1)
- Visible emissions shall not exceed 30% opacity, for a period or periods aggregating more than six (6) minutes in any sixty (60) minute period, during fire

building, cleaning of fire boxes, soot blowing, start-up, process modifications, or adjustment or occasional cleaning of control equipment (Reg 1, Section II.A.4)

Based on engineering judgment, the Division believes that the operational activities of fire building, cleaning of fire boxes and soot blowing do not apply to diesel engines. In addition, since this engine is not equipped with control equipment the operational activities of adjustment or occasional cleaning of control equipment do not apply to this engine. Finally, based on engineering judgment, it is unlikely that process modifications will occur with this engine. Therefore, for this unit the 30% opacity provision only applies during startup. The 20% opacity requirement (noted in the above bullet) applies at all other times. Note 40 CFR Part 63 Subpart ZZZZ (table 2c, item 1 and § 63.6625(h)) specifies that startup shall not exceed 30 minutes

- SO₂ emission shall not exceed 1.5 lbs/mmBtu (Reg 1, Section VI.A.3.b.(i)).
- 40 CFR Part 63 Subpart ZZZZ requirements

Since this engine is an emergency it is only subject to management practices (oil and filter change, inspect air cleaner and inspect hoses and belts)

- 40 CFR Part 63 Subpart A requirements

Since this engine is not subject to any emission limitations, monitoring requirements, notification and reporting requirements the requirements in §§ 63.7, 63.8, 63.9 and 63.10 do not apply. In addition, since this engine is existing the requirements in § 63.5 (preconstruction review and notification requirements) do not apply. Finally, Table 8 of Subpart ZZZZ indicates that operation and maintenance requirements in 63.6(e) do not apply. Therefore, the permit will only include the prohibition and circumvention requirements in § 63.4.

Since this unit is not subject to APEN reporting or minor source construction permit requirements, the permit will not include any requirements for calculating emissions.

Compliance with the opacity limit shall be monitored by conducting a Method 9 observation annually to monitor compliance with the 20% opacity requirement. If the engine operates for 250 hours in a calendar year, another Method 9 observation will be required. Since periods of startup are limited to 30 minutes a Method 9 observation to monitor compliance with the 30% opacity requirement will not be required.

Section III – Acid Rain Requirements

- Revised the Designated Representative and Alternate Designated Representative.
- Revised the table in Section 2 to include calendar years corresponding to the relevant permit term for the renewal.

- Added the source and date for the standard requirements (Section III.3).

Section V – General Conditions

- A version date was added.
- The paragraph in Condition 3.d indicating that the requirements are state-only has been removed, since EPA approved these provisions into Colorado's SIP effective October 6, 2008.
- The title for Condition 6 was changed from "Emission Standards for Asbestos" to "Emission Controls for Asbestos" and in the text the phrase "emission standards for asbestos" was changed to "asbestos control".
- Condition 29 (VOC) was revised primarily to add the provisions in Reg 7, Section III.C as paragraph e although other minor language and format changes were made.

Appendices

- Language was added to the insignificant activity list in Appendix A to indicate those insignificant activity categories for which records should be available to verify insignificant activity status.
- The emergency generator was removed from the insignificant activity list in Appendix A and is included in Section II of the permit.
- Revised the reports in Appendices B and C to include the full company name (i.e., "Public Service Company of Colorado", rather than "Public Service Company").
- The emergency generator was included in the tables in Appendices B and C.
- Changed the name of the Division contact for reports, corrected EPA address (compliance notifications) and to clarified "permit modifications" that go to EPA in Appendix D.

Public Service Company, Zuni Station
Hazardous Air Pollutant Emissions

Natural Gas

Emission Unit	formaldehyde	acetaldehyde	toluene	benzene	acrolein	cadmium	chloroform	hexane	dichlorobenzene	nickel	chromium	Total
Boiler No. 1A	1.45E-01		6.57E-03	4.06E-03		2.13E-03		8.31E-04	2.32E-03	4.06E-03	2.71E-03	1.68E-01
Boiler No. 1B	6.44E-02		2.92E-03	1.80E-03		9.45E-04		3.69E-04	1.03E-03	1.80E-03	1.20E-03	7.45E-02
Boiler No. 2	3.46E-01		1.57E-02	9.69E-03		5.08E-03		1.98E-03	5.54E-03	9.69E-03	6.46E-03	4.00E-01
Total	5.56E-01	0.00E+01	2.52E-02	1.56E-02	0.00E+01	8.15E-03	0.00E+01	3.19E-03	8.89E-03	1.56E-02	1.04E-02	6.42E-01

No. 6 Fuel Oil

Emission Unit	formaldehyde	naphthalene	toluene	benzene	TCA	cadmium	lead	hexane	dichlorobenzene	nickel	chromium	Total
Boiler No. 1A	4.34E-01	1.48E-02	8.15E-02	2.81E-03	3.10E-03		1.98E-02			1.11E-00		1.67
Boiler No. 1B	1.93E-01	6.60E-03	3.62E-02	1.25E-03	1.38E-03		8.82E-03			4.93E-01		0.74
Boiler No. 2	1.04E-00	3.55E-02	1.95E-01	6.72E-03	7.41E-03		4.74E-02			2.65E-00		3.98
Total	1.66E-00	5.69E-02	3.12E-01	1.08E-02	1.19E-02		7.61E-02	0.00E+01	0.00E+01	4.26E-00	0.00E+01	6.39E-00